left side of the uterus which was thought to be a large tube. She did well for three months subsequent to the curettement, menstruating regularly. About the middle of the following July, she was taken sick with considerable pain in the lower abdomen, slight fever and rapid pulse. An examination showed the abdomen considerably distended, very tender. A small mass could be made out in Douglas' pouch. Supposing that the symptoms were due to a fresh attack of salpingitis, she was advised to enter the hospital. A few days later, on July 24th, on opening the abdomen, an ectopic pregnancy was discovered. The tube bound down by old adhesions had ruptured, leaving about a pint of blood in the pelvic cavity. After the diagnosis had been made by opening the abdomen, it was easy to confirm it by harking back to the history. On questioning the patient closely concerning the events leading up to her sickness, it was found that she had menstruated regularly and was feeling well up to the time of her present illness. But suddenly, while working about the kitchen, she felt a sharp pain in her side and fell to the floor, rolling about in agony. She was helped into bed, had hot applications applied and felt better. She was not seen until 24 hours after this occurrence when the acute symptoms had subsided. The sudden onset of pain, such as occurred in this case, accompanied by fainting or shock, was very characteristic of the condition. It means, of course, leakage, or abortion, or rupture.

This case also illustrates one of the chief points that I wish to make, namely, the paramount importance of a careful history in arriving at a diagnosis in pelvic disease. As between a physical examination on the one hand and a careful history on the other, the latter is far more important in the majority of cases of pelvic disease. In my own experience, and I am sure it will hold good in the experience of others, where ectopic pregnancy has been overlooked, the fault lies in failing to get a satisfactory history.

Treatment. — Every once in a while the question is raised as to the choice between vaginal section and abdominal section in operating on these cases. If the diagnosis is made, to my mind, the only safe procedure is to open the abdomen. A vaginal section might be used as an exploratory measure, but only under circumstances where one is prepared to perform a laparotomy if necessary. Where there is hemorrhage, it is sometimes hard enough to check it even with the abdomen open. With a vaginal section, the difficulties of the operation are vastly increased in all directions.

When a diagnosis is made, an operation should be performed as soon as possible thereafter. Even if the hemorrhage has ceased, there is need of reasonable haste, for the bleeding may start up again at any time with even greater severity. As regards technic, the procedure depends largely upon the conditions found. If the amount of blood in the pelvic cavity is small, it is easily removed, together with the ruptured tube. Usually both ovaries and the uterus are covered with large amounts of exudate and adherent clotted blood, appearing to be in bad condition, but careful examination and careful wiping will show the trouble to be external rather than intrinsic. One may therefore safely be conservative with regard to all else than the affected tube unless the other parts are distinctly diseased.

If the patient is in bad condition, and the abdomen filled with blood, the first procedure is to stop the hemorrhage. The question now arises as to what shall be done with the blood. According to Futh the operative procedures are of three kinds. One group of surgeons believes that all the blood should be left in the abdomen to be absorbed, thus lessening the anaemia which is one of the most serious symptoms of the condition. Another group removes all the blood carefully by washing and sponging the organs lest the blood clots become infected. The majority of operators, however, hold the middle course, removing the larger portion of the blood, but allowing what can not be easily reached to remain, so as not to prolong the shock of the operation.

It may be said in passing that in profuse hemorrhage into the abdominal cavity, it is almost imsible to remove all the blood, for it finds its way up under the liver and even through the foramen of Winslow into the lesser peritoneal sac. Some blood remaining does no harm, and the removal of the easily reached blood is, in my opinion, all that is necessary, but on account of the anaemia and shock, it is quite an important measure to fill the abdomen with normal salt solution as substitute for the lost blood. This salt water is quickly absorbed and is of great service in overcoming shock.

In conclusion, the points concerning ectopic pregnancy that seem to me important are:

(1) The condition is more common than is realized.

(2) It is often overlooked.

(3) The symptoms are often obscure.

(4) In diagnosis the history is much more important than the physical examination.

(5) Granting the difficulty of diagnosis and the serious nature of the disease, the possibility of its presence should be borne in mind whenever a case of pelvic disease is under examination.

EUROPEAN CLINICS.*

By EDWARD C. SEWALL, M. D., San Francisco.

On my recent visit to the clinics in Europe I saw many things that interested me. Many of them I have already found of great advantage in my work and I present them with the hope that some of the points may possibly be of interest to you.

The time spent in Prof. Killian's clinic, where both he and his first assistant, Dr. von Eicken, showed me the greatest courtesy in allowing me to remain for months and take an active part in

*Read before the Eye, Ear, Nose and Throat Society.

the work, was replete with interesting clinical experiences.

We all have much interest to-day in the surgery of the accessory sinuses. Killian has done more than anyone in the furthering of our knowledge of these cavities and the treatment of their diseased conditions. For a small clinic, he has an enormous number of operations, and adverse criticism has been made in this regard. When one has been there, however, for a time, and has seen that the country at large furnishes these cases, the frequency of them is accounted for.

I had my eyes opened to the conservative methods of work on one of my first days in the clinic. I was told to examine a case, and on finding pus coming from the frontal and anterior ethmoidal region, asked what was the treatment. General measures to add to the comfort of the patient, mild sweating, rest in bed, etc., were adopted. The drainage was good and the patient was allowed to recover, which she did, practically unaided, in a short time. Then cases of a chronic nature receive all the treatment in the way of irrigation of the cavities, correction of pathological nasal irregularities, etc., that seem of advantage. *Intra* nasal ethmoid work is also done to a certain extent, and the cells are opened intranasally as far as it is considered safe to proceed. It is only after the most conservative and careful study of the cases that radical measures are adopted.

It is unnecessary to go over the frontal sinus operation as outlined by Prof. Killian, but there are certain features in the technique which I have already found to be of advantage in doing the operation. The first cut is made slowly and carefully, the incision going only through superficial layers of the skin; this gives greater accuracy than when we cut deeply. After making this first curved incision, small cross-nicks are made, especially in the upper inner angle of the orbit. These are valuable, when we come to putting the skin back in place, as landmarks. The incision is now deepened by successive long sweeps of the scalpel. It is Killian's habit now to remove the *supraorbital* nerve at the time of the operation, on account of persistent neuralgia, which was present in some of his cases. This adds a difficulty to the procedure, but merely necessitates going more slowly, dissecting the nerve and carefully separating it from the artery. It is then grasped by a pair of specially grooved forceps, which I have brought with me, and by slowly turning the same, the nerve is wound out, being thus drawn peripherally and centrally. After the removal of the nerve, a simple expedient is made use of that greatly shortens the next step of the operation. The skin of the forehead is drawn upward so that the *bottom* of the incision first made, which was through the eyebrow, now lies some distance above the supraorbital rim. Pressure is made by an assistant on the supraorbital artery from below and the incision is carried now with one cut through tissue and periosteum, giving us the upper limit of the ridge to be preserved. The hemorrhage, at this early stage of the operation, is annoying, and this simple expedient saves time. Clamps are now applied to bleeding vessels.

I will now leave the operation here and speak of the disturbing hemorrhage which I had in my former operations, after opening into the ethmoid cells. I found it necessary to work to a large extent by the sense of touch. This is all avoided in the following manner. The nose, previous to the operation, is packed as full as possible with long tampons of cotton, each fastened by a string; this has great influence in controlling the hemorrhage. Killian, on opening the ethmoid cells, works backward very slowly, never opening a cell until he has seen it absolutely plainly and studied it with his probe. Here, he makes use of adrenalin, but what has far more value, is the use of simple normal salt solution, which washes out the blood and debris, and makes all the procedure very plain. Killian uses his salt solution, as I saw him, on strips of gauze, with which he washed out the cavity.

I have, since seeing him use salt solution, used it in a common irrigator, and have found it to work beautifully; all blood and debris is washed out, and the excess of solution is drawn out with a large glass syringe and the cavity dried. In this way, I have been able to study each cell carefully before opening it, and on arriving at the sphenoid had no difficulty in opening it *if it was diseased.*

In a case operated on this morning, the ostium sphenoidale was found plugged with granulation tissue. On introducing probe into sinus much pus flowed out under pressure.

The next *modification of his method* he has made in regard to the treatment of the middle turbinal bone. After finishing with the ethmoid region, the mucous membrane of the nose is cut through; this is preserved as a flap, but Killian has not a great opinion of its value as such. The middle turbinal now lies in view, and a varying amount of it is amputated according to its character as to pneumaticity. He is conservative in all this work, and leaves as much of the middle turbinal as possible. This allows a protection to the eribriform plate. A light gauze drain is now introduced into the frontal sinus and brought out at the anterior nares. The tendency is to get away from rubber tubes and packing, except where the latter is necessary to control hemorrhages.

The closing of the wound, he formerly did by celluloid suture. He now uses a soft aluminum wire, which is admirable. I have since used silver wire, and find it to work very well. These sutures are interrupted, and do away with capillarity.

Killian's results are brilliant, and patients are up and about without dressing in a week to fourteen days. The discharge of course continues much longer, but becomes very rapidly lessened. In regard to the greatest objection to the operation, the deformity, a few words are necessary; it is entirely from the retraction. The scar is imperceptible in a short time. Where the sinus is large, the retraction is ugly, but even in these cases, paraffin

injected cold, relieves the condition. Where the frontal sinus is moderate or small in size, the retraction is insignificant. In these cases, the entire resulting deformity is nil. It *is,* then, of the utmost importance in giving our prognosis as to cosmetic results, that we know the size of the sinus. We can get at this by probing in some cases approximately, in others, transillumination gives us a not very reliable idea of the extent of the cavity. It is only since the introduction in Killian's clinic of the X-ray photographing of the head from behind, that we have an absolute method of determining the amount of deformity we are to expect. This has been worked out very thoroughly by Drs. Killian and Von Eicken, and pictures are made of all cases. This is not the only sphere of usefulness of such pictures; they also show the presence or absence of such sinuses, and of *greatest* importance, indicate very clearly diseased conditions.

A case very much in point, is one of which Prof. Killian told me. Antrum washed out, no pus. Reported to surgical clinic, no disease. Sinus was later opened and found filled with tubercular granulation tissue. The X-ray would have shown this. I have brought with me some such plates, made for me by Dr. C. M. Cooper, in which he has demonstrated most beautifully these points. In one of these plates especially, the presence of pus in the cavities of the left side, is very clearly shown. I have since performed the Killian operation on two of these patients, doing also the Ogston-Luc operation for the antral infection at the same time. The findings at the operation bear out the diagnosis as shown by the plates.

In speaking of the frontal sinus operation, I wish to mention Dr. Jansen's modification of Killian's operation: In order to obviate the necessity of depression in cases where there are large sinuses, he separates the anterior wall from its attachments on all sides, *but the upper,* and then grasping it firmly between the jaws of forceps, turns it forcibly upward, breaking it away and thus forming a hinge joint above. After cleansing out the sinus, he puts this flap back into place. This idea however, is contrary to Killian's theory that retraction, *at least for a time,* is necessary to cure the disease by ablation of the cavity.

There are one or two points on the submucous resection of the nasal esptum that I found of advantage. There is always difficulty, after separating the mucous membrane from the cartilage of the septum, of continuing the stripping down over the bony excrescences, which are often the cause of the greater part of the deformity. We are leaving now, the mucopericondium, and are encountering the mucoperiosteum, and must cut through this either with a scalpel or by vigorous use of our periosteal separator. Attention to this detail will avoid perforation.

This operation certainly has a broad sphere of usefulness. Cases of sinus infection have healed spontaneously when septum deformity has been corrected so that drainage is not interfered with. In regard to the anesthesia in this operation, Von Eicken employs the tablets of cocain and adrenalin, submucously injected. Well diluted, the solution itself helps to raise the mucous membrane. The anesthesia produced by pledgets of cotton soaked in the solution and applied, does not compare with this method of injection. Ogston-Luc operations I have also seen Von Eicken do under local anesthesia.

Killian has, I think, made a useful modification of this radical treatment of antrum disease. His method of leaving the anterior and posterior ends of the inferior turbinal bone, allows a sufficient drainage, and at the same time, saves valuable parts to the nose. He formerly preserved the mucous membrane of the lateral wall of the nose as far as possible, and placed it in his curetted cavity to aid in the epithelization. This, however, he has found to be of little use and has abandoned the procedure.

In making his diagnostic entrance into the antrum, or in treatment, he chooses the middle meatus, and on a great many of his patients is able to enter through the natural opening.

(I have brought his trocars and canula in case any of you should be unacquainted with them.)

The Killian tubes for direct bronchoscopy and tracheoscopy are in constant use in the clinic. I saw the removal of foreign bodies from the bronchi, and was much impressed by the importance of the tubes for diagnostic purposes.

The same high-class work was carried on in Prof. Axenfeld's clinic, near by. The work done here in the bacteriology of the eye has made the laboratory famous. I saw Prof. Axenfeld do a number of cyclodialysis operations: the comparatively new procedure for chronic glaucoma. I also saw this operation several times in Prof. Fuch's clinic in Vienna, but it was still in too much of the experimental stage for an idea of its value to be obtained.

These are a few of the points that come to mind as I think over the work in the clinic at Freiburg. I was much impressed by the quiet, scientific and thorough manner in which all the work was done there.

LABORATORY METHODS OF DIAGNOSIS IN TYPHOID FEVER.*

BY HERBERT W. ALLEN, M. D., SAN FRANCISCO.

Excluding malaria and possibly diphtheria, there are few, if any, of the acute infectious diseases in which careful laboratory work is of greater assistance in diagnosis than in typhoid fever. In some cases its aid is almost superfluous, in many it assists in early diagnosis, while in a few, diagnosis without it is practically impossible.

In this paper I wish to run over briefly the various methods that are of value in suspected cases. First and probably most important, is the matter of blood cultures. These have been used more or less for many years, but it is only since about

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